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Four new species of Terebridae (Mollusca: Gastropoda) from the Philippine Islands

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ABSTRACT

Four new species of the molluscan family Terebridae obtained through recent trawling and tangle-netting operations on the continental shelf (60–240 m) in the central and southern Philippine Islands are described and compared with related species. These new species are *Terebra bilineata*, *Terebra hiscocki*, *Terebra moncuri* and *Duplicaria deynzerorum*.

KEYWORDS: Mollusca, Gastropoda, Terebridae, *Terebra*, *Duplicaria*, new species, Philippine Islands.

INTRODUCTION

The Terebridae is a large family of marine molluses consisting of approximately 300 species whieh inhabits primarily tropical seas. In the only major monograph of the family in the twentieth century, *Living Terebras of the World*, the authors, Bratcher and Cernohorsky (1987) recognised 276 Recent species. Several new species have been described since the publieation of this landmark work.

Terebrids arc members of the highly evolved group Conoidea (formerly Toxoglossa), eharacterised by having the proboseis formed by an anterior elongation of the buccal tube with the buccal mass at its base, a permanent proboscis sheath, a venom apparatus, and elaboration of the marginal teeth of the radula into large hollow darts specialised for venom injection (the central and lateral teeth having been lost) (Kohn 1998). In this respect, many speeies of the Terebridae are similar to those of the family Conidae, in that poison is used to capture prey. However, not all terebrid species possess this attribute. All terebrids are carnivorous, nocturnal, and have a chitinous operculum.

The structural morphology of all species is similar, in that eaeh possesses an elongate, tapered shell, coiled dextrally about the central axis. Most exhibit a subsutural 'band' situated immediately anterior to the suture, which is usually delineated by a weak to pronounced groove or an impressed trench. The subsutural band may be nodulose, ribbed, smooth, indicated by eolour alone, or eompletely absent in certain species. Axial and/or spiral sculpture of varying degrees is present in most species. Axial sculpture may range from well developed ribbing to indistinct striations reflecting stages of growth, whilst spiral sculpture may be manifest in the form of strong raised eords, weak striations, or rows of punctations. In certain speeies, axial and spiral seulpture form weak to well-developed nodes at points of intersection, often resulting in a eancellate appearance. The aperture is elongate and often somewhat quadrate in appearance. All terebrids possess multi-whorled protoeonchs, varying from mammillate to conical in shape. Shells vary from dull to glossy, with colours ranging from drab monochromatics through to elaborate patterns of vivid eolours.

Whilst the majority of speeies inhabit waters from the intertidal zone down to depths of approximately 50 m, several species inhabit far deeper waters. Recent deep water trawling and tangle-netting operations within the Philippine archipelago have yielded a vast array of unusual molluscs, including numerous species of Terebridae. Although the majority of terebrid material obtained represents well established speeies, several spccies new to science have been discovered. The description of four such species constitutes the subject of this paper.

The four new species here discussed are represented by three members of the genus *Terebra* and one member of the genus *Duplicaria*. All four new species are presently known only from the Philippine Islands and all are most probably endemic to this region. Three (*Terebra bilineata* sp. nov., *T. hiscocki* sp. nov. and *T. moncuri* sp. nov.) are known to occur at various localities throughout the Philippine archipelago, whilst the remaining species (*Duplicaria deynzerorum* sp. nov.) is at present known only from its type loeality. However, given the distribution pattern of the majority of endemic Philippine molluscan speeies, it is highly probable that all four species do occur throughout the eentral and southern Philippine Islands.

Anatomical details and descriptions of the opercula of these new species could not be recorded as the specimens provided to the author were dried or cleaned, and the animal was either removed or completely retracted.

MATERIAL AND METHODS

All specimens examined were collected either by tangle nets (set in approximately 60–200 m depth off the coast of Panglao, Bohol and Talikud, Mindanao) or by trawling at a depth of approximately 240 m off the coast of Aliguay, Mindanao. The holotype, along with the paratypes, of all species, are deposited within the dry mollusc collection of the Museum and Art Gallery of the Northern Territory (NTM), Darwin, Australia.

SYSTEMATICS

Family Terebridae Mörch, 1852
Genus *Terebra* Bruguière, 1789
Terebra bilineata sp. nov.

(Fig. 1A–C)

Type material: HOLOTYPE – NTM P20180, off Panglao, Bohol, Philippine Islands, tangle nets, mud/sand substrate, 60–200 m. PARATYPES – 1 and 2, NTM P28240, off Panglao, Bohol, Philippine Islands; tangle nets, mud/sand substrate, 60–200 m; PARATYPE 3 – NTM P28241, off Talikud, Mindanao, Philippine Islands; tangle nets, mud/sand substrate, 60–200 m.

Description. Colour white to cream; subsutural band with sporadic squarish maculations of reddish brown; a narrow band of small squarish maculations of similar colour is present on the periphery of the body whorl, with a similar band of maculations present immediately below the periphery of the body whorl; on certain individuals (paratype 3) a further wide band of fawn to brown is present immediately below the subsutural band; aperture white to translucent; protoconch brownish. Subsutural band of numerous, narrow, well developed, straight axial ribs, crossed by three to four narrow spiral grooves; band delineated by a weak groove. Axial sculpture of numerous, narrow, well developed, straight ribs. Spiral sculpture of numerous, fine grooves confined to interstices of axial ribs. Outline of whorls slightly convex. Aperture elongate quadrate. Columella curved. Protoconch of 3 or 4 glassy, bulbous whorls.

Size. Holotype length 27.5 mm. Paratype 1 length 30.2 mm. Paratype 2 length 29.5 mm. Paratype 3 length 27.4 mm.

Type locality. Off Bohol and Mindanao, Philippine Islands.

Distribution. At present known only from the Philippine Islands.

Remarks. The two narrow bands of brownish maculations on and below the periphery of the body whorl are indistinct in some individuals.

Comparisons. *Terebra bilineata* may be compared to *T. conspersa* Hinds and *T. burchi* Bratcher and Cernohorsky, from which it is immediately separable by the presence of the two narrow bands of maculations on the body whorl. *Terebra bilineata* is also separable by its lack of brownish colour below the periphery of the body whorl which is present upon both *T. conspersa* and *T. burchi*.

Etymology. The species is named after its distinguishing characteristic of two, narrow, inconspicuous, reddish brown bands occurring on and below the periphery of the body whorl.

Terebra hiscocki sp. nov.

(Fig. 1D–F)

Terebra sp. – Springsteen and Leobrera 1986: 260, pl. 74, fig. 7.

Type material. HOLOTYPE – NTM P20181, off Aliguay, Mindanao, Philippine Islands; trawled, mud/sand substrate, 240 m. PARATYPES – 1 and 2, NTM P28242, off Aliguay, Mindanao, Philippine Islands; trawled, mud/sand substrate, 240 m.

Description. Colour fawn to pale brown with sporadic axial maculations of dark brown; a pale band of cream is present upon the periphery of the body whorl; subsutural band with pale brown staining within interstices of axial ribs; aperture white to translucent; protoconch brown. Subsutural band of numerous, narrow, well developed, straight axial ribs; 3 or 4 narrow spiral grooves are present, confined to the interstices of the axial ribs; band delincated by a weak groove. Axial sculpture of numerous, narrow, well developed, straight ribs. Spiral sculpture of numerous, fine grooves crossing the axial ribs. Outline of whorls straight. Aperture elongate quadrate. Columella well developed and recurved. Protoconch of 2 or 3 glassy, bulbous whorls.

Size. Holotype length 34.7 mm. Paratype 1 length 35.5 mm. Paratype 2 length 33.1 mm (decollated).

Type locality. Off Aliguay, Mindanao, Philippine Islands.

Distribution. At present known only from the Philippine Islands.

Remarks: So far this species is known from Mindanao (present material) and Cebu (Springsteen and Leobrera 1986).

Comparisons. *Terebra hiscocki* differs from its most closely related species *T. russoi* Aubry by its more slender teleoconch, and the dark staining which occurs sporadically throughout the shell being not restricted to any regular pattern and crossing the axial ribs indiscriminately. *Terebra campbelli* Burch, also of slender morphology, may be separated from *T. hiscocki*

by the overall decussated appearance of its sculpture, as well as its more strongly delineated subsutural band. *Terebra hiscocki* differs from all members of the complex of species — *T. amoena* Deshayes, *T. pertusa* (Born), *T. alveolata* Hinds, *T. marmorata* Deshayes, *T. conspersa* Hinds and *T. burchi* — by not having dark maculations confined to the subsutural band. The recently described *Terebra poppei* Terryn, from the southern Philippines and northern Papua New Guinea, is similar to *T. hiscocki* in size and in lacking a subsutural band; however, *T. poppei* has more rounded whorls, more stepped shoulders, narrower axial ribs,

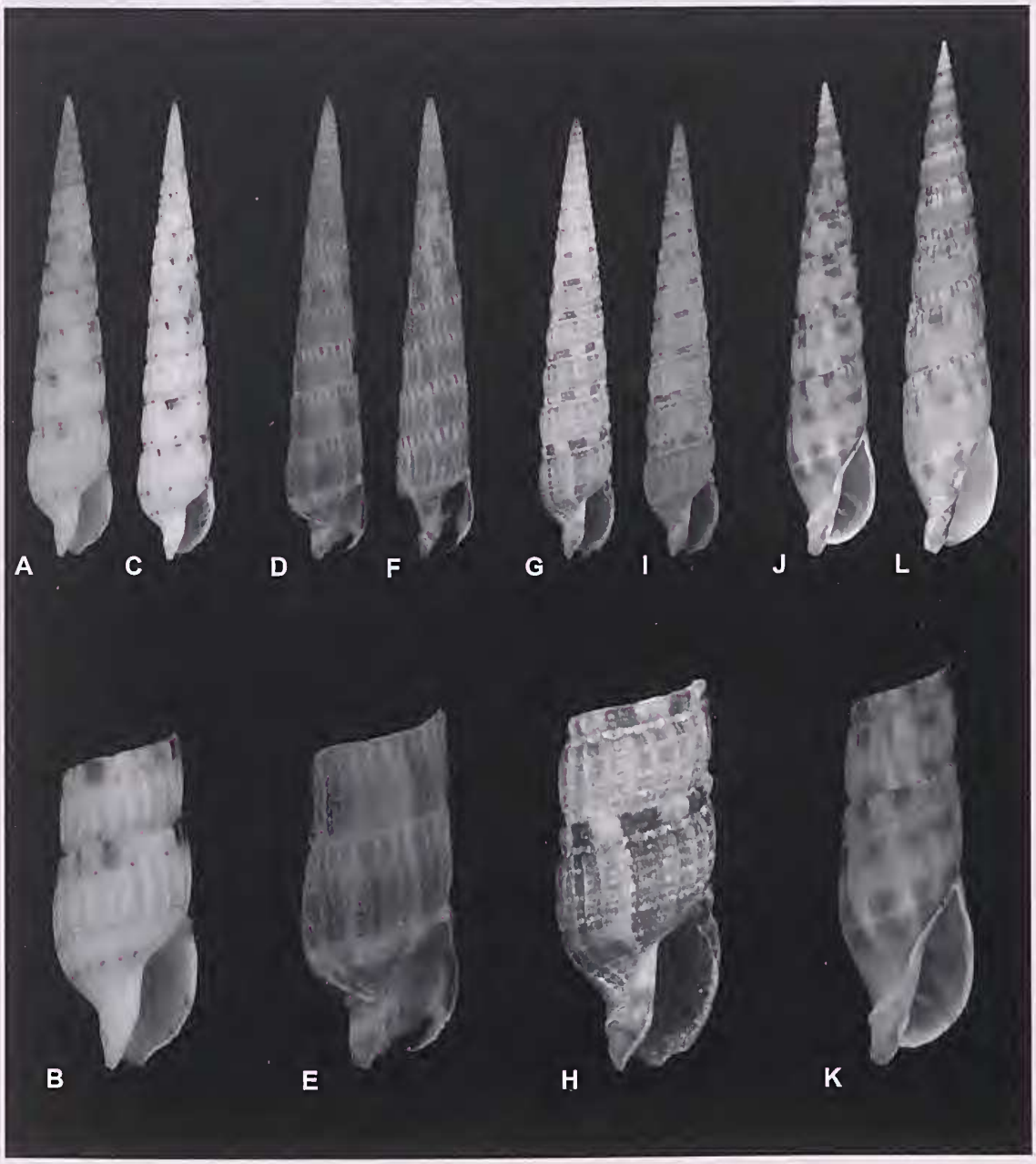

Fig. 1A–L. Type material of Terebridae described in this paper: **A**, **B**, *Terebra bilineata* sp. nov. holotype, NTM P20180, 27.5 mm; **C**, *Terebra bilineata* sp. nov. paratype, NTM P28240, 30.2 mm; **D**, **E**, *Terebra hiscocki* sp. nov. holotype, NTM P20181, 34.7 mm; **F**, *Terebra hiscocki* sp. nov. paratype, NTM P28242, 35.5 mm; **G**, **H**, *Terebra moncuri* sp. nov. holotype, NTM P20182, 24.5 mm; **I**, *Terebra moncuri* sp. nov. paratype, NTM P28243, 26.9 mm; **J**, **K**, *Duplicaria deynzerorum* sp. nov. holotype, NTM P20183, 54.5 mm; **L**, *Duplicaria deynzerorum* sp. nov. paratype, NTM P28244, 60.2 mm.

and is white to pale yellowish brown with a darker brown subsutural band and (occasionally) a weak broader band at the periphery of the body whorl. According to Terryn (2003), specimens of *T. poppei* originating from Papua New Guinea came from 80 m, whereas those from the Philippines came from 100–240 m, although he concluded these differences were probably artefacts of sampling and that in both areas the bathymetric range is continuous from 30–240 m or deeper.

Etymology: The species is named in honour of Dr Martin Hiscock of Melbourne, Australia, an avid shell collector and close personal friend of the author.

Terebra moncuri sp. nov.

(Fig. 1G–I)

Type material. HOLOTYPE – NTM P20182, off Aliguay, Mindanao, Philippine Islands, trawled, mud/sand substrate, 240 m. PARATYPES – 1 and 2, NTM P28243, off Aliguay, Mindanao, Philippine Islands; trawled, mud/sand substrate, 240 m.

Description. Colour cream to fawn, with sporadic axial maculations of slightly darker colour; subsutural band with squarish maculations of dark brown alternating with white to cream; a narrow band of pale cream is present upon the periphery of the body whorl; aperture translucent; protoconch reddish brown. Subsutural band of numerous, weak, axial ribs delineated by a deep groove. Axial sculpture of numerous, well developed, slightly arcuate ribs, crossed by spiral sculpture of 2 or 3 narrow grooves. Outline of whorls convex. Aperture elongate. Columella well developed and recurved. Protoconch of 2 or 3 glassy, bulbous whorls.

Size. Holotype length 24.5 mm. Paratype 1 length 26.9 mm. Paratype 2 length 18.8 mm.

Type locality. Off Aliguay, Mindanao, Philippine Islands.

Distribution. At present known only from the Philippine Islands.

Remarks. The extremely fragile and translucent shell makes *Terebra moncuri* quite distinct from any other Philippine terebrid. So far this species is known only from the immediate vicinity of its type locality, the island of Mindanao.

Comparisons. The species with which *Terebra moncuri* may most closely be compared belong to the complex which includes *T. campbelli*, *Terebra melanacme* E. A. Smith and *T. gotoensis* E. A. Smith. It may be separated from all these species principally by its extremely fine, fragile and translucent shell. *Terebra moncuri* also exhibits a slightly more convex outline to its whorls than other related species. The recently described *T. dedonderi* Terryn, from the southern Philippines and northern Papua New Guinea, is similar to *T. moncuri* in size and in possessing a subsutural band, however *T. dedonderi* has considerably more rounded whorls, a much weaker subsutural groove, fewer axial ribs (17–20), a white subsutural cord with a brown band immediately below that is continuous rather than a series of alternating brown and white maculations as in *T. moncuri*. According to Terryn (2003), *T. dedonderi* has a bathymetric range of 30–240 m.

Etymology. The species is named in honour of Alistair Moncur of England, a well known shell dealer and close personal friend of the author.

Genus *Duplicaria* Dall, 1908

Duplicaria deynzerorum sp. nov.

(Fig. 1J–L)

Type material. HOLOTYPE – NTM P20183, off Panglao, Bohol, Philippine Islands; tangle nets, mud/sand substrate, 60–200 m. PARATYPES – 1, 2 and 3, NTM P28244, off Panglao, Bohol, Philippine Islands; tangle nets, mud/sand substrate, 60–200 m.

Description. Colour fawn, to caramel, to pale brown, with a wide band of roughly squarish maculations of darker brown alternating with white to cream; a similar band of colour is present upon the periphery of the body whorl; subsutural band with irregular maculations of brown and cream; in certain individuals (i.e., holotype and paratype 1), a narrow band of white to cream bisects the band of colour upon the periphery of the body whorl; aperture whitish to slightly translucent; protoconch cream; shell with high gloss. Subsutural band of numerous, narrow, well developed, straight axial ribs, delineated by a deep groove. Axial sculpture of numerous, narrow, well developed, straight ribs. Outline of whorls straight and very slightly turreted above the suture. Aperture elongate with somewhat flaring outer lip. Columella well developed and recurved. Protoconch of 3 or 4 bulbous whorls.

Size. Holotype length 54.5 mm. Paratype 1 length 60.2 mm. Paratype 2 length 55.5 mm. Paratype 3 length 59.1 mm.

Type locality. Off Panglao, Bohol, Philippine Islands.

Distribution. At present known only from the Philippine Islands.

Remarks. The shell of *Duplicaria deynzerorum* exhibits a very high gloss only present upon members of the genus *Duplicaria*. So far this species is known only from the immediate vicinity of its type locality, the island of Bohol.

Comparisons. The only species with which *Duplicaria deynzerorum* may be compared is *D. raphanula* (Lamarck), from which it may be separated by its far heavier and more solid shell, and by its more well-developed axial ribs.

Etymology. The species is named in honour of the Deynzer family of Florida, U.S.A., well known shell collectors, shell dealers and friends of the author.

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REFERENCES

Bratcher, T. and Cernohorsky, W.O. 1987. *Living Terebras of the World.* American Malacologists: Melbourne, Florida, U.S.A.

Kohn, A.J. 1998. Superfamily Conoidea. Pp. 846–854 in Beesley, P.L., Ross, G.J.B. and Wells, A.E. (eds). *Mollusca: The Southern Synthesis. Fauna of Australia. Vol. 5.* CSIRO Publishing: Melbourne, Australia.

Springsteen, F.J. and Leobrera, F.M. 1987. *Shells of the Philippines.* Carfel Shell Museum: Manila.

Terryn, Y. 2003. Two new Terebridae species from the Indo-West Pacific. *Gloria Maris* **42**(4–5): 66–75.

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